Rice

Global rice trade is projected to grow more than 2 percent annually from 2000 (MY 1999/2000) through 2008. World trade is actually expected to drop in 1999 as the impacts of the 1997 and 1998 El Nino diminish, but rise to almost 22 million tons in 2000 and reach 27.8 million tons by 2008--almost 6 percent above the current record of 26.3 million set in 1998. Projected trade growth is faster than in the 1980s, but slower than in the 1970s and early 1990's.

Trade is expected to continue to consist predominantly of long-grain (indica) varieties, despite anticipated gains in medium-grain (japonica) rice imports by Japan and South Korea under the Uruguay Round Agreement. Nominal prices are expected to rise throughout the projection period, while real prices are expected to fall, although less rapidly than in the past. Global medium-grain prices are expected to rise relative to long-grain prices due to limited world exportable supplies of high-quality japonica rice and greater import demand.

Foreign production is projected to rise gradually, growing about 1 percent per year. Projected growth is slower than in the 1970s and 1980s, when irrigation expanded more rapidly in Asia and Green Revolution technology was widely adopted. Expectations of slower production growth stem primarily from a slowdown in yield increases. Expansion in global acreage is expected to remain extremely small, as it has since 1975.

Foreign consumption is projected to rise slightly more than 1 percent annually, markedly slower than during the 1980s and early 1990s. Per capita rice consumption in higher income Asian countries has been declining, and is expected to continue to decline, as larger portions of the population achieve middle-class incomes and consumption of rice declines in favor of other foods, such as wheat products, fruits and vegetables, and meat. Per capita rice consumption in other key countries, such as China, is projected to decline during the coming decade, as consumers continue to diversify their diets away from rice in response to rising incomes. These developments are expected to almost offset gains in total consumption in other regions, primarily lower income rice producing countries--such as India, Bangladesh, Indonesia, and the Philippines--and higher income non-Asian countries--such as Canada, the EU, and the United States were per capita consumption is projected to continue rising. Total rice consumption is projected to continue increasing in Central and Eastern Europe and in the Middle East, even though per capita consumption has leveled off in both regions.

The U.S. export market share for rice varied from nearly 15 percent to just over 18 percent between 1991 and 1995, and averaged 12.6 percent from 1996 to 1999. It is projected to average more than 12.6 percent in 2000 and then slowly decline to about 10 percent by 2008. Small U.S. production gains, continued growth in domestic use, and high U.S. prices relative to Asian competitors are expected to prevent any significant increase in the volume of U.S. rice exports. By 2008, total U.S. exports are projected at about 2.9 million tons, while total imports are expected to rise to 0.42 million tons, leaving the U.S. a net exporter of more than 2.4 million tons of rice in 2008.

Historically, rice trade and prices have exhibited greater volatility than those of other cereals. This

volatility stems from the dependence of many large producers and traders, including Indonesia, the Philippines, Bangladesh, Thailand, Vietnam, and India on the timing and amount of rainfall during the Asian monsoon season. In addition, only a small share (around 5 percent annually) of world rice production is traded. These factors will continue to affect the world rice market during the next 10 years, with the potential to create dramatic annual swings in trade and prices that could deviate significantly from the trends projected in this baseline.

Highlights for Major Importers

Global rice import growth will primarily be fueled by the needs of Indonesia, the Philippines, Brazil, and the Middle East. Although Central America, the Caribbean, Sub-Saharan Africa, and other Asian countries are major markets, import growth in these regions is expected to be relatively small. Developing countries, particularly in Asia, Latin America, and the Middle East will continue to account for the bulk of the gains in import demand. Indonesia is expected to remain the largest rice importer rice throughout the projection period, with imports rising from under 2 million tons in 2000 to 3 million in 2008. Iran will likely continue to face strong demand growth and only little expansion in production. Brazil is projected to continue to experience faster gains in consumption than production.

Indonesia. Indonesia's rice imports are expected to drop in 1999 and 2000 as the country recovers from the 1997 and 1998 El Nino related production difficulties. Imports are then projected to expand steadily after 2000, exceeding 3 million tons by 2008. This would still be below the country's record of 5.9 million tons imported in 1998. Rice area is projected to continue to expand as the country attempts to limit imports. But, area growth will slow over time, reflecting the rising costs of expanding irrigation in areas off the major island of Java. Yield growth is likely to be slow as well, as new area will be on less desirable land; no additional rice area is possible on the highest-yielding areas on Java. The current financial and economic troubles have raised the local costs of fertilizer and pesticides, as well the cost of funds for land and infrastructure development, and may limit Indonesia's ability to increase rice yields.

Indonesian rice trade has historically been volatile, with the country ranging from the world's leading importer during the 1970s, to virtual self-sufficiency by the late 1980s, and back to the largest importer in recent years. Significant annual imports are projected to continue, but the outlook is heavily dependent on trade and production policies, as well as foreign currency reserves and credit availability. In addition, the progress of expanding rice area and technology off Java will be a major factor determining the level of rice imports.

Philippines. The projections indicate that production growth will barely be able to match expanding consumption in the Philippines, causing imports to slowly rise after 2000. Imports are projected to be reach almost 1.7 million tons by 2008, up from 1.4 million in 2000. Imports were a record 2 million tons in calendar year 1998, largely due to El Nino related production difficulties. Yield growth is projected at about 1.5 percent over the projection period. The Philippines currently has very low yields in comparison with other Asian countries. Area expansion is expected to be only marginal, thus limiting production growth. As has been the case in recent years, the Government is expected to be

more open to rice imports in order to prevent consumer prices from rising.

Brazil. Brazil's imports are projected to show solid expansion, rising from 1.1 million tons in 1999 to almost 1.4 million by 2008. Very slow growth in production will be more than offset by consumption gains driven by population growth and an improving economy. A slow, but steady decline in area and only small yield growth account for the small production gain. Increasing competition from lower-cost producing areas in Argentina and Uruguay due to reduced trade barriers under MERCOSUR, is expected to limit production growth in Brazil.

China. Although projected to be a net exporter over the next decade, China is expected to continue importing rice, with imports rising from more than 400,000 tons in 2000 to nearly 700,000 by 2008. However, projected imports remain well below the 1995 record of nearly 2 million tons. Most import growth will be in high-priced fragrant rices from Thailand, which already account for the bulk of China's imports. Rice area is forecast to continue to fall because of declining food use, higher prices for competing crops, and rising nonfarm uses of agricultural land. Land now producing lower-quality indica rice in Southern China will likely account for the bulk of the area decline. At the same time, demand will likely strengthen for the higher-quality japonica rice--with the bulk produced in northern China, even as rice land in this region is also pressured by competing uses. Greater japonica plantings are expected to be driven by increased demand for high-quality rice among Chinese consumers and for the lucrative Japanese and Korean export markets.

China's future rice trade will be heavily affected by policy and technology factors. The extent to which China imports any low-cost Southeast Asian indica rice depends on whether future policies are guided by objectives of self-sufficiency or comparative advantage. Further, because of China's size and the fact that its rice trade is currently a very small portion of production or consumption, small adjustments in China's supply or demand projections can yield significant changes in global trade.

East Asia. Under the terms of the Uruguay Round Agreement, minimum access in the high-valued japonica markets of *Japan* and *South Korea* will grow from an initial 425,000 tons (milled) in 1995/95 to almost 1 million tons by 2004/05, significantly increasing global import demand for japonica rice. Judging from Japan's 1994 experience, there is very limited consumer acceptance of substitute long-grain rice varieties for food use in these countries, so most of these imports will come from the major japonica exporters--the U.S., Australia, and China. Japan's tariffication of its rice imports in early 1999--which allows over-quota imports at a prescribed tariff rate--slowed the rate of increase in minimum quota imports in 1999 and 2000 and could reduce Japan's long term import projection. No imports beyond the required minimum access amounts are projected for either Japan or South Korea over the next decade. Negotiations regarding tariffication and extending the minimum import quota for Japan after 2000 will be included in the next WTO Round.

Other Asia. Import growth in other Asian countries is projected to be modest during the next decade. *Malaysia's* rice imports are projected to rise slightly during the next ten years, from about 600,000 tons to 785,000, as modest consumption growth outstrips marginal increases in production. Continued decreases in rice area are more than offset by modest yield gains resulting from more efficient

production systems. Gains in import are limited as diet diversification leads to continued declines in per capita rice use.

In *Bangladesh*, trade and financial constraints will continue to limit imports. Import are projected to grow to about 800,000 tons by 2008, up from about 730,000 in 2000. Although Bangladesh has imported 1.5 million tons or more of rice in recent years due to weather related production shortfalls, the government strives to be self-sufficient in basic foods. Production is projected to continue expanding, largely driven by expanding area. Yields, already low in comparison to other Asian countries, are not expected to increase much.

Middle East. An already large regional import demand is projected to grow rapidly, driven by higher incomes, growing populations, stable-to-rising per-capita consumption, and limited potential for greater production. Income growth in most Middle Eastern countries is expected to be faster than during the 1980s and early 1990s.

Iran will account for the bulk of the region's imports, as consumption expands at more than three times the pace of production--a result of no yield growth and very small area increases. Iran's imports are projected to expand from 1 million tons in 2000 to 1.5 million in 2008, making Iran the third largest importer in the world.

Imports by *Saudi Arabia* are also projected to expand. Saudi Arabia, which does not grow rice, will remain a major rice importer due to primarily to a rising population and, to a lesser degree, small growth in per capita consumption. Saudi Arabia is projected to import almost 1 million tons by 2008, up from about 760,000 in 2000.

Imports by *Iraq* are projected to expand as well, rising from 648,000 tons in 2000 to nearly 850,000 in 2008, largely driven by strong consumption growth. Although production is expected to increase again after 1999, mostly driven by a recovery in yields, domestic output will continue to account for only a small share of consumption.

Turkey, a leading japonica market behind Japan, is expected to show steadily rising imports as expanding production fails to keep pace with consumption. Imports are projected to grow from 312,000 tons in 2000 to more than 400,000 by 2008.

Sub-Saharan African and Former Soviet Union. Slow income growth and limited food aid budgets are expected to dampen expansion of sales of rice to developing markets with limited resources, preventing conversion of all of their potential demand into actual imports. Limited import growth by *Sub-Saharan African* countries, as well as the central Asian republics of the *FSU*, stem largely from limited financing for commercial imports. Growth in consumption and imports for these and other low-income countries often depends on availability of credit or food aid, particularly from the United States. Funding for U.S. food and credit guarantees for rice have declined in recent years and now account for a smaller share of U.S. exports than earlier in the decade. Given the outlook for U.S. rice to continue to sell at a premium in the world market, the U.S. market share in these regions could decline further if

the availability of U.S. credit and food aid is less than assumed.

Central America and the Caribbean. Production growth is expected to barely outpace consumption growth, resulting in only small import gains through 2008. Imports are projected to rise only slightly, from about 1 million tons in 2000 to just over 1.1 million tons by 2008. Modest population growth and stagnant per capita consumption limit import growth.

Other Countries. Total import demand for rice in *Canada*, the *EU*, *Other Western Europe*, and *Central and Eastern Europe* is projected to expand from about 940,000 tons in 2000 to 1 million tons by 2008, a slow, but steady, annual rate of growth. The EU will account for the bulk of imports from these regions over the next decade, while Canada and Eastern Europe will show stronger import growth. Except for Canada, little expansion in per capita use is projected.

Highlights for Major Exporters

Exports from many of the major rice producers are projected to increase as demand for rice rises and nominal prices strengthen. Thailand is projected to remain the largest exporter, with solid export growth expected. Vietnam is projected to remain the second largest exporter, but growth will be slower than for Thailand. India is expected to expand exports, ranking third throughout the projection period and accounting for a larger share of trade. Pakistan is expected to expand exports as well. While ranking fourth over the next decade, Pakistan's share is expected to increase.

Outside of Asia, Argentina is projected to nearly double exports over the decade, while smaller expansion is projected for Uruguay. Only Australia, China, and the United States are expected to be viable long run sources of japonica rice for Japan and South Korea to meet their minimum access requirements under the Uruguay Round Agreement.

United States. As a major exporter of medium-grain rice, the United States has benefited significantly from the Uruguay Round Agreement. But, despite significant market access gains in East Asian medium-grain markets under the agreement, total U.S. rice export volume is projected to increase only fractionally in the baseline. The extent of U.S. gains in medium-grain markets depends on U.S. capacity to expand production and exports on a sustainable basis. California, the primary U.S. producer of high-quality japonica rice, faces increasing environmental restrictions on expanding acreage and improving already high yields. Limited availability of additional water prevents any substantial increase in California rice area as well. Other U.S. growing regions have yet to develop suitable japonica-type varieties for cultivation. The outlook for a widening long-grain export price premium compared with top-quality Asian exports implies that the United States will lose some of its long-grain exports in the more "price-sensitive" markets such as the Middle East and South America.

Thailand. Thailand's production growth is projected to exceed expansion in consumption, enabling exports to post steady increases. While rice area is projected to show no long-term growth, and actually contract after 2002, yields are projected to steadily rise with improved technology and

additional inputs. Per capita rice consumption is projected to decline steadily as consumer preferences begin shifting toward higher consumption of other grains, fruit, vegetables, and meats. Thai exports are projected to average 2 percent annual growth, slightly below the pace of expansion in world trade causing Thailand's share of world trade to drop from almost 30 percent to just over 28 percent.

Vietnam. In Vietnam, growth in exportable surpluses is expected to be limited by slower growth in production, combined with modest gains in domestic rice demand. Scope for expanding rice area through increased cropping intensity is now more limited, as is the scope for achieving rapid yield gains through adoption of higher yielding varieties. Rice exports are projected to increase gradually from 4 million tons in 2000 to almost 4.8 million by 2008. Vietnam is projected to remain the second largest exporter throughout the next decade, accounting for more than 17 percent of world rice trade from 2000 to 2008.

India. India has been a net exporter of rice most years since the mid-1970s, with annual exports rising to an average of 3.8 million tons during 1994-97, when domestic and world market conditions facilitated a massive expansion in exports. India's annual rice exports are projected at 2 million tons in 2500, rising to almost 4 million tons, or more than 14 percent of world exports, by 2008. Production growth, led mostly by higher yields, is expected to slightly outpace expansion in consumption. India currently accounts for about 11 percent of world rice exports. Although exports of aromatic basmati rice, which formerly accounted for about half of rice exports, will continue, non-basmati varieties are expected to account for most of India's export gains through 2008.

India's ability to supply the projected level of exports is a key uncertainty in the outlook. First, it is uncertain if government policy will be consistently supportive of an export orientation by maintaining producer incentives and promoting improved standards and grading. Second, it is uncertain how rice consumption will respond to the relatively high sustained growth in incomes that is projected for India during 1999-2008, and the extent to which the government will use subsidized public distribution to moderate domestic consumer rice prices.

Burma. Although one of the world's rice exporters until the mid-1960's, Burma has ceased to be a significant exporter in recent years. No significant expansion in Burma's exports are projected over the next decade, with exports projected at a little over 100,000 tons in 2008. And, while Burma has recently changed its paddy procurement policy to one with a more market-oriented emphasis, little impact on trade is currently projected.

In recent years Burma's exports--primarily from the main monsoon crop rice harvest--have been extremely small. This has been partly due to below market prices for mandated quota sales to the government, which discouraged farmers from planting rice and improving quality. Burma has apparently backed away from its policy, begun in 1992/93, of promoting greater exports by encouraging a second monsoon crop and the planting of a summer--or dry season crop. This policy was not successful in increasing exports and likely led to a more volatile domestic market. Farmers prefer to plant pulses, a traditional second crop, which are better suited for dry season growing and are significantly more profitable. It is expected that rice will be exported only after domestic needs are filled. In previous decades, Burma exported over 1.5 million tons of rice annually.

Burma's agricultural policy is not market-oriented and export levels are highly dependent on domestic policy developments. Unanticipated policy changes could result in rice exports that are significantly higher or lower than projected.

Pakistan. The government of Pakistan continues to promote rice production and exports. Rice exports are projected to increase from 2.2 million in 2000 to 2.7 million by 2008. Production is projected to rise due to steady increases in area and continued small increases in yields. Yield growth will be slowed by the expanded plantings of higher-priced, but lower-yielding, basmati rice, as well as a plateauing in the fertilizer response levels of the higher yielding varieties introduced during the green revolution. Expanding exports are the result of modest production expansion and continued declines in per capita consumption.

South America. Higher production is expected to generate more exports by South American countries, particularly after the year 2000. Most of these exports are likely to be shipped to intra-Latin American destinations, with the bulk of exports from Uruguay and Argentina going to Brazil. Guyana is the principal exception, exporting most of its rice to the Caribbean and the EU. However, as Guyana's loses its preference in the EU market, the country is likely to look for markets in Latin America.

Australia. In Australia, exports of japonica rice are expected to rise slowly from more than 700,000 tons in 2000 to more than 800,000 by 2008. Growth in production will more than offset steady expansion in consumption. A small area expansion and marginal yield growth account for the larger crops. However, production growth is constrained by limited availability of water. In addition, yields are already quite high in comparison with other developed countries. Domestic demand and per capita consumption are rising, partly a result of the increasing numbers of immigrants from Asia. Greater demand from Japan will account for nearly all of Australia's export growth.

China. China's rice exports are projected to steadily rise over the next decade, expanding from 813,000 tons in 2000 to almost 1.3 million in 2008. In 1998, China exported a record 3.7 million tons and has exported more than 2 million tons on other occasions. China's exports are expected to consist primarily of lower quality and broken rice to Southeast Asia, the Middle East, FSU, and Africa, but also include some high quality japonica exports to Japan and South Korea. Despite the poor acceptance of China's japonica rice in Japan in 1993/94, China is still expected to be a modest supplier of japonica rice to Japan and South Korea over the longer term as quality improves. While China's disadvantages in this market are numerous, including its current inadequate infrastructure for reliable delivery and poor-quality processing, its advantage is the proximity of north China production to the Japanese and South Korean markets. Greater investment in processing and marketing infrastructure would likely improve quality and export prospects in this high-priced market.